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The Third Wave:

What the Tofflers Never Told You

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Conclusions

- Although much of the Revolution in Military Affairs (RMA) debate centers on the notion that the Information Age represents a Third Wave paradigm shift, the Information Age is only one of the components of the Third Wave.
- The Third Wave is marked not by a paradigm

shift, but the utter lack of a paradigm.

- Discussions about the RMA (or, as it is increasingly being called, Revolution in Security Affairs, as some call it) should reflect the specific conditions existing in the Third Wave, in this regard, the Tofflers' analysis is incomplete.

The Composition of Waves

It is inevitable that the future will not be determined by the singular, unimpeded triumph of information technology. It is naive to presume that something so epochal as a struggle for a paradigm shift should lack for pretenders and contenders. Indeed there is no shortage of formidable combinations of contending ideas for the Third Wave crown. But what is the arrangement of a wave?

- The first level of any wave is inhabited by technology, artifacts and processes. The economy is central and politics inherent, as are social forms. This is the plane at which Alvin and Heidi Toffler and Peter Drucker ply their craft. Here we subscribe, as they do, to the continuum from an Agrarian Age to an Industrial one to the emergent Information Age.
- The intermediate plane of a wave can be described in essentially cultural terms. The cultural terms Premodernism, Modernism, and Postmodernism apply here, and we subscribe to their context. It is in this region that art, literature, poetry, and philosophy flourish. It is also the den of ideology.
- The third and deepest level of a wave is the foundational. Paradigms originate in this region.

A paradigm is *the dominant and fundamental way of thinking within a period—how phenomena are perceived and assigned meaning*. It is here that the genesis of ideas culminates in outcomes in the other layers. Paradoxically, science, religion, and superstition share this region. Here we subscribe to the Age of Faith, the Age of Reason, and what is provisionally called the Age of Intuition, as a working title.

Waves are parallel, but not coterminous. Nor is a paradigm continuously present within a wave. The table on Page 2 shows the general arrangement as it applies to the Western world. (This implies there are other stories to be told, but the framework holds as a universal.)

There is no Paradigm Shift

The levels normally interact vertically through a "Principle-Metaphor-Tool bridge." The effect of Newton's discoveries, for example, are portrayed by Gene Edward Veith, Jr., in "bridge-terms" as follows: "With the rise of modern science, which accompanied the industrial revolution (*Tool*), nature itself began to be seen as a machine (*Metaphor*). Nature was interpreted as a closed system of cause and effect, which can be totally explained by mathematical and experimental analysis (*Principle*). Whereas preindust-

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rial human beings confronted nature as a mysterious living organism, the scientists of the Enlightenment reduced nature to a complex but inert mechanism that could be taken apart, rationally understood, and used like any other mechanical device."

James Gleick provided another example: "The Second Law of Thermodynamics has established itself firmly in the non-scientific culture....Any process that converts energy from one form to another must lose some energy as heat (*Principle*). Perfect efficiency is impossible. The universe is a one-way street" (*Metaphor*). This principle, known as *entropy*, has taken on its own intellectual value far removed from science, taking the blame for disintegration of societies, economic decay, the breakdown of manners, and many other variations on the decadence theme" (*Tool*).

These "secondary, metaphysical incarnations" of scientific thought are metaphors forming bridges or clover leaves linking the levels, transferring ideas formulated as principles at the foundational level to the application layer to become tools, principally through the creative powers of writers, philosophers, and artists. A successful cycle forms a paradigm.

There is a striking difference between the nature of the First and Second Waves, and that of the 3rd. The first two achieved paradigms that were effectively three layers deep. The First and Second Waves had periods of integrity. This is not necessarily a claim for their morality, or their outcomes. Rather, integrity simply means that both developed to the point where their paradigms held—that their plumbing worked for significant periods of time. The Third Wave so far does no such thing. It leaks like a sieve and remains a "work-in-process," despite the superficial projection of the Information Age as a paradigm in contemporary fashion. There is no paradigm shift, but a shift from paradigm to non-paradigm.

A Paradigm Lost

Of utmost importance is whether a paradigm is any longer achievable. The Second Wave paradigm is irretrievably lost. Can the layers of the Third Wave be consistently, supportively aligned to render an effective consensus as to how phenomena shall be perceived in order to give it meaning? Is the basic, acculturated pattern of thought which constitutes a paradigm, giving cohesion and force to an age and to its inhabitants, a thing of the past? Upon this condition, all higher order divisions and cooperation have depended. Until recently the United States, during its entire history, has never been without a paradigm. This accounts for much of its success, and also for much of the current confusion in its affairs. The possibility that life will have to proceed,

without the foundational—that being unable to achieve a paradigm we must go on without any broad agreement as to the meaning of meaning—is individually frightening, and collectively debilitating.

This crisis in the Third Wave is caused by proponents at each layer attempting to triumph independently as a paradigm contender *horizontally*, rather than following the convention of *vertical* synthesis through "bridging." The abdication of the cultural layer in fulfilling its middleman paradigm-building role, is traced back to the 1930's in C. P. Snow's *The Two Cultures*, published in 1959. John Brockman in his *The Third Culture* (1995), provides this update and concurrence: "Literary intellectuals are not communicating with scientists. Scientists are communicating directly with the general public....Today, thinkers tend to avoid the middleman and endeavor to express their deepest thoughts in a manner accessible to the intelligent reading public."

What each layer is independently promoting as a paradigm pretender is inadequate. None of them can

Waves, Revolutions and Ages			
Layer	Waves		
	First	Second	Third
Application	Agricultural	Industrial	Information
Interpretive	Premodernism	Modernism	Postmodernism
Foundational	Faith	Reason	Intuition*

*Provisional

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provide a paradigm shift alone. A paradigm needs the full force of the total energy, spirit, and creativity of a society, represented by all three levels. In order to do this, the levels must talk to each other. As we shall find, in the Third Wave they have ceased to do so.

The Disconnected Third Wave

The Information Age

George Stein of Air University has succinctly summarized the heart of the Tofflers' universal thesis in their *War and Anti-War*. It involves "the transformation of the chief forms of American society's mode of wealth generation from land, through natural resources and industrial infrastructure, to knowledge/data/information as the new creators of wealth. First-Wave wars were fought over land, second-wave wars over physical productive capacity; the emerging third-wave wars will be for the access and control of knowledge. As the 'combat form' in any society follows the 'wealth creation form' of that society, the wars of the future will be predominantly, but not solely, 'Information Wars.'"

This thesis prompts an examination of the wealth creating powers of the Information Age, which forms the underlying basis for the assertion. The Tofflers describe 10 features of the "new economy." However, these lack the profound surface effects which would indicate the presence of a powerful underlying paradigm representing a new wealth-creating form worthy of supporting a new age for mankind to embrace enthusiastically, or resign oneself to as inevitable. The Information Age is, if anything, unrelenting in its surrender to the deterministic forces of history through the triumph of technologically driven futures, immune to human intervention. There is, therefore, no need to engage in dialogue with the other levels of the Third Wave.

The fact is that the Information Age has an economy as does every period. But what the Information Age does not have are wealth-creating concepts incorporated in a coherent and persuasive economic theory. It depends on Second Wave economics. In fact, we find in the *Wall Street Journal* that Bill Gates "believes in 'capitalism' the same way Adam Smith did more than 200 years ago." Therefore, some economists view the Information Age as merely an extension of the Second Wave (often referred to as the "3rd Industrial Revolution.") In November 1994, Peter Drucker admits in the *Atlantic Monthly* to the "need to develop an economic theory appropriate to a world economy in which knowledge has become the key

economic resource and the dominant, if not the only, source of comparative advantage."

Postmodernism

Essentially, Postmodernism represents an agenda, while its neighbors, the Information Age and the Age of Intuition (provisional), are the product of technology and science, respectively. This agenda represents a reaction to Modernism, so intense and successful as to do it under, as the Enlightenment once undid Premodernism. Indeed the Postmodernists, with their introduction of critical theory, incorporating textual deconstruction, may be the most successful pure information warriors in history because they went for the jugular—language itself.

NDU's David Johnson cites a key argument from *Telling the Truth About History* (Joyce Appleby, Lynn Hunt and Margaret Jacobs): "The primary goal of the Postmodernists has been to challenge convictions about the objectivity of knowledge, and the stability of language. They challenge the neutrality of science and the modern state and assert that their cognitive methods are biased by their agendas that are gendered, ideological and politicized.... They also argue against the possibility of any certain knowledge. 'Truth' derives from the construct...that human beings do not discover a *truth in accordance with nature*; they invent it, so the truth is always changing."

Paradigm-building, however, has been largely dependent upon metaphoric "bridging," the result being deemed to incorporate the essence of the *truth in accordance with nature*. This chasm alone can account for the intransigence, even hostility, of Postmodernists to engage in vertical paradigm-building.

Recently, however, such events as the publication of *Telling the Truth About History*, and the exchange between Stanley Fish and John Richard Neuhaus in the journal *First Things*, may indicate a disposition to dialogue, after 70 years of noncooperation. There is in these events, perhaps a small harbinger of hope that the deadlock within the Third Wave will be eventually relaxed. It also may be that the resurgence of Premodernism, in the media's guise of the "religious Right," and the spirited debate over values in society are also factors.

Finally, Postmodernism as a paradigm contender shares with the Information Age the Achilles' heel of lacking a convincing wealth-creating economic theory. This discrepancy was first observed 16 years ago, and has persisted since. In 1980, Ogilvy and Schwartz

"searched very hard, in a variety of disciplines, for indications of the emergent paradigm. They found their evidence everywhere, in such diverse fields as physics, chemistry, brain theory, mathematics, biology, philosophy, political theory, linguistics, consciousness research, psychology, religion, and the arts, but they did not find it in the field of economics."

In 1994, W. Kirk McNulty attempted an explanation for the missing new economics. He suggests that economics is so central to the Industrial Age and Modernism because it "lies on the axis of polarization," and therefore is "locked in place, so to speak, during the process of the paradigm shift.... That is why new ideas billed as 'new age economics' have the flavor of rehashed schemes.... We will probably not see a really new economic theory developed until the paradigm shift is complete."

"The Age of Intuition"

Aristotelian and Thomist concepts formed the archetypes for the Age of Faith, and Cartesian/Newtonian concepts for the Age of Reason. Post-Newtonian nonlinear sciences, exemplified by Chaos and Complexity theories, are now emerging to support another prescription. The hallmark of nonlinear science is the startling idea that apparent chaos such as international relations, white water rapids, and battlefields, are *unpredictable, but are within bounds, self-organizing*. A few things are effectively linear, and at the other extreme, another few are effectively random. The remainder are the vast unexplored, newly-conscious universe of phenomena which are "in between," and which we know little about, and would not know at all without the computer.

Uncovered in the last quarter century, the potential of the idea of self-organization has hardly been scratched. In this vast domain may lie new literatures, engineering, philosophies, arts and social dynamics to self-organize a better society.

Nonlinear science rejects the primacy of deterministic tendencies found in the Information Age, as well as the nihilistic performance and legalism of Postmodernism. It calls for the elevation of intuitive processes to deal with the variable of *bounds*, in an equation in which both *prediction* and *solution* are not amenable to current conventions of planning and control. It seeks a Third Way, at the seam between the polarities of Faith and Reason. It moves from physics toward biology.

Nonlinear economics suggests that information technology as a wealth creator, a key element of the Information Age argument, is prone to monopolistic behavior, and promotes market forces which do not necessarily optimize product capabilities. Further, it rests on problematic national security and military strategies to deal with the integrity of intellectual property. Wealth creation requires synergy among all three Waves—Agricultural, Industrial and Informational, without privileging the last.

The noted physicist Heinz Pagel had it right: "I am convinced that the nations and people who master the new sciences of complexity [*and chaos theory*] will become the economic, cultural, and political superpowers of the next century." Presidents complain that there is a "malaise" among the people, and that the nation is in a "funk." If the nation and people are without a paradigm to give spirit, cohesion, and force, is it any wonder they feel malaise and act as if in a funk?



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